

## 6 定数係数線形微分方程式 その1

### Linear differential equation with constant coefficients

同次形 Homogenous case

#### 6.1 p.62

Consider the following differential equation,

$$y'' - 4y' + 3y = 0. \quad (*)$$

- (a) Find the general solution of (\*).
- (b) Eliminate arbitrary constants in the solution obtained in (a), and verify whether (\*) can be derived.
- (c) Verify whether the solution derived in (a) satisfies the equation (\*).

#### 6.2 pp.62-64

Find the general solution for each of the following equations;

$$(1) y'' + 3y' + 2y = 0 \quad (2) y'' + 6y' + 9y = 0 \quad (3) y''' - 3y' - 2y = 0$$

Confirm whether the derived solution satisfies the differential equation.

#### 6.3 p.66

Find the general solution for each of the following equations;

$$(1) y'' + 2y = 0 \quad (2) y'' + 2y' + 4y = 0 \quad (3) y'''' + 2y'' + y = 0$$